RECENTLY PATENTED INVENTIONS.

Engineering.

GAS ENGINE.—Lewis S. Brown, Columbus, Ohio. This invention relates to an improvement in four period engines, arranged to insure a proper mixture of air and gas and a positive ignition of the explosive mixture. When the engine is in operation a valve shaft is rotated so that an electrode, at every revolution of the shaft, closes and breaks a circuit, making a spark to ignite the explosive mixture in the working chamber of the cylinder. The mixing chamber is connected by a valve with a cylinder connected with the gas supply pipe, and by another valve with an air tube, both the air and gas being drawn through fine wire netting, and both the air and gas being drawn into the mixing chamber by the suction caused by the movement of the piston.

WATER TUBE BOILER.—William C. Stuckel, Chicago, Ill. To insure rapid circulation of the water and quick generation of steam this inventor has devised a boiler in which a series of inner upflow water tubes connect an upper and a lower water compartment, downflow water tubes surrounding the inner tubes, and a fire box in the lower compartment having its crown sheet extending below the inward upflow water tubes to cause the heated water to rise directly to the upflow tubes, the cold water flowing downward from the outer downflow tubes to the crown sheet. The downflow water tubes have a larger area than the aggregate area of all the upflow tubes, so that an unobstructed circulation of the water is had at all times.

Bicycles, Etc.

BICYCLE PARCEL CARRIER.—Henry W. Heaton, Olneyville, R. I. This is a device arranged for convenient folding, to occupy but little space when not in use. It consists of a metallic frame, with netting to form a basket, and a clamp secured to the bicycle frame on which the carrier frame is pivoted. The latter frame is made in sections, and the clip members have that portion next the clamping screw made straight and divergent to engage larger or smaller parts of the bicycle frame. The netting is preferably made of strands of knotted cord, so that when the frame is swung up and not in use the netting hangs down loosely in the frame without occupying much space.

BICYCLE LOCK.—James J. Byrne, Detroit, Mich. This inventor has provided a permutation lock applicable to the steering heads of bicycles, to engage and hold the steering fork, so that it will be impossible to use the machine. The lock has an exterior casing mounted to turn and adjust the position of the tumblers, the casing having a flange with a broken periphery capable of being engaged by an object to determine the number of notches turned by the casing. When it is light the rider may see the notches turned and operate the lock without the key plate, but the lock may be operated in the dark by counting the pulsations of the key plate against the hand.

Electrical.

CIRCUIT BREAKER FOR ELECTRIC WIRES.—Andrew J. Clark, Lexington, Ky. For automatically breaking the circuit of a trolley or other electric wire, should the wire break and its ends fall down, this inventor has patented a device which is efficient for this purpose and also serves as a hanger for the wire. It comprises vertical levers having contact plates extended at right angles from the lower ends, and to which the current carrying wires are attached, a block of insulating material to which the upper ends of the levers are pivoted, and lugs on the lower portions of the levers adapted to interlock when the levers are in their closed positions. The lugs cause the contact plates to engage closely, but the engagement is not strong enough to hold the plates together when the strain of the wire is released.

TIME ALARM.—Alvah C. Roebuck, Chicago, Ill. A graduated disk rotated by clockwork, according to this invention, is made to move in conjunction with the minute hand to close a circuit containing an alarm or signal. The disk has adjustable arms adapted to be set to the time when the alarm is to be sounded, such arms actuating a lever to move a contact point in the path of a contact point on the minute hand of the clock, whereby the device may be readily set for any hour and minute and the fraction of a minute. The length of the contact may be adjusted to suit requirements by making the size of the contact points accordingly.

Mechanical.

RIVETING MACHINE ATTACHMENT.—Alfred E. Watts, Duluth, Minn. An attachment is provided by this invention by which the riveting machine can be used both for riveting parts together and for again loosening the rivets to withdraw them from the fastened parts, the rivets being reformed to permit them to be used again. The invention consists principally of a die interposed between the rivet holder and the punch of the machine, the die being formed with an opening in alignment with the rivet holder and terminating at its lower end in a widened mouth.

RULING MACHINE.—Frank Hudson, Covington, Ky. This machine is adapted to take a roll of paper from a paper-making machine and rule it on one or both sides in any colored ink or combination of inks, cutting the ruled paper to proper lengths and widths, and counting and assembling the ruled sheets, the operation being performed continuously. All parts of the machine are so geared that the impression rollers and dies move at a uniform speed with the paper, and the machine is simple and inexpensive to build and operate, requiring only one hand to superintend its operation.

COFFEE HUSKING.—Thomas F. Doyer, Pasoeroean, Java. According to this invention, the berries are subjected, before hulling, to a treatment to loosen the hulls from the grain, the berries being fed into a compressing or loosening apparatus, and gradually conveyed toward the outlet by a screw, whence they are taken by a stream of water into the hulling machine proper, where primary hulling rollers tear the hulls open and screw-threaded finishing rollers hull the berries and simultaneously convey them longitudinally of the rollers. The process and machine are designed to effect the complete removal of the red hulls and the avoidance of all sieves and sorting or grading devices, the work at the same time being so performed that the berries are exposed to view during the whole operation.

Agricultural.

STALK CUTTER.—Charles Shafer, Bedford, Neb. To facilitate cutting corn stalks in the field, this invention provides an attachment to the riding frame of a reaper or mower to force the stalks close to the ground and cut them, while in such position, in specified lengths. The attachment may be applied to any form of truck, with which are connected uprights and a shaft sliding in them carrying a knife, arranged to have a reciprocating and partly rotating movement. The knife is reciprocated to cut the stalks in required lengths as the latter are forced and held flat to the ground by a roller, the operating mechanism being simple and positive.

Miscellaneous.

UNDERFLOW TESTING APPARATUS.—Howard V. Hinckley, Topeka, Kansas. For accurately measuring the extent and permanency of water supply to be had in any special location, this inventor has devised an apparatus which is available when the width and depth of the water bearing stratum and the rate of slope are known. It comprises a trough or flume whose inner sides are coated with pitch, there being a screen near each end and a series of stoppered outlets at different heights at one end. The pitched sides and bottom of the trough between the screens are coated and the trough filled with the gravel of the locality to be tested, the trough partly filled with water and given the desired inclination, when the speed of flow is determined by the efflux from the outlets, a series of trials being made for each locality.

LIFE SAVING RAFT.—Edward Clark, New York City. This is a form of raft in which parallel elongated floats or buoyant chambers are connected together by an intermediate framework, the whole being designed to support a great number of people. It is made partly of a flat-bottomed boat, to whose bottom are attached cross bars connecting with the floats at the sides, the latter being also connected by straps or braces with the upper rail of the boat.

SNAP BLOCK.—Thomas Dods, Guttenburg, N. J. This device comprises a frame having a pivot and a screw rod, a cross piece hung on the pivot having at its free end a recess to engage the screw rod, while a nut on the screw rod has an outlet fitting into a counterbore in the top of the cross piece at the inner end of the recess. The block is arranged for convenient opening and closing, to connect or disconnect a rope or cable, without requiring reeving and without danger of losing any of the parts or weakening the block.

SAFETY OIL CAN.—William Bell, Bay Side, N. Y. Two patents have been granted this inventor, according to one of which the can has an air inlet extending from the nozzle into its upper end, the inlet being connected with a vessel adapted to contain a liquid, and the vessel also having an air inlet. It is designed more especially to facilitate the filling of oil lamps, preventing their overflow by the closing of the oil inlet and giving a signal when the lamp is filled to the proper limit, and also indicating when the can is empty and the lamp not filled to the proper height. According to the other invention, the vent pipe is made in sections, one of which extends from the oil can nozzle into a closed vessel below the liquid therein and the other section connects the top of the vessel with the interior of the oil can. The closed vessel is preferably made of glass or other transparent material.

FASTENER FOR NECKTIES, ETC.—William A. Bunn, 621 Alexander Avenue, Winnipeg, Canada. According to this invention, spring arms carry a pair of pins extending in opposite directions, a ring engaging the shank of the collar button or other part on which the article is to be suspended, the ring being a continuation of the spring arms. The device may also be used as a vest pocket guard for a pen or pencil, or wherever a ring would be attached, as on curtains, suspenders, etc., or in fastening jewels on regalias.

VACCINE POINT PROTECTOR.—George G. Rambaud, New York City. To protect the lymph from contact with foreign substances that may be floating in the air and render it possible to employ liquid virus in connection with an ivory point, this inventor provides a casing, preferably of glass, into whose open end is fitted a stopper, the stopper forming the outer end of the point having on it the liquid virus. A sealing liquid is placed over the stopper when it is put in place, and, thus prepared, the virus may be kept for several months in a cool place.

AUDITORY INSTRUMENT.—John H. Kellogg, Battle Creek, Mich. To increase the volume and delicacy of sound waves, this inventor has devised an attachment for stethoscopes, or for the use of partially deaf persons, comprising a bell-shaped body with thin diaphragm across its mouth, a spring having a pin that bears on the inner side of the diaphragm, a removable spring clamp attached to the body and having a central disk that bears on the outer side of the diaphragm, a post projecting from the center of the clamp, and a disk or tip attached to the free end of the post. The clamp attachment is supplemental, and is used with the stethoscope and by partially deaf persons.

DENTAL ENGINE MALLET.—Clyde E. Williams, Springfield, Mo. On the outer end of the mallet casing, according to this invention, is a socket adapted to receive the plugging point, and a spring engages the hammer to force it in one direction, while the length of the stroke is regulated by a rotating shaft and a cam and pin placed one on the hammer and the other on the shaft, a stepped slide being interposed between the hammer and the plugger. The stroke is delivered whether the plug is touching the tooth or not, and the blow is as effective as that delivered by the usual hand mallet, but many times more rapid.

PLACKET FASTENER.—Henry C. Zenke, Brooklyn, N. Y. This device consists of two flexible bands adapted to be held in the placket facings of a skirt, one band having at its lower end a guideway to receive the lower end of the other band, and each band having at its upper end a flange to fit in the waist band, one of the flanges having a hook and the other an eye. It is impossible for the placket to open accidentally when the dress is worn.

Designs.

CLOTHES PIN.—William M. Gilbert, North Wales, Pa. This is a cylindrical pin with terminal bulb at each end and a central lateral notch or cut in the shape of a slot, to which there is a side opening, there being in one side of the slot in one of its walls a transverse groove.

TEAPOT.—Austin F. Jackson, Taunton, Mass. This is a rich design affording a novel shape and artistic ornamentation of the body, legs, handle, spout and top.

HANDLE FOR PANS OR LIDS.—William E. Baxter, Frankfort, Ky. This handle has an upturned hooklike part and a tanglike projection to fit the slot in stove lids. It is stamped out of one piece of metal, being also made long enough to be utilized as a poker.

TOY.—Oscar McDonald, Jersey City, N. J. This device is made of a wire post with ring at the top, below which is a hand hold where cord may be wound, and still lower down is a tin disk which presents a unique appearance when the top is spun.

PUZZLE BOARD.—Furman W. Velsor, Cold Spring, N. Y. This is a triangular board with intersecting lines forming the outlines of four triangular spaces and six diamond-shaped spaces.

BELT FASTENER.—Jonathan Hill, Jersey City, N. J. This fastener consists of an arched bar whose ends curve over the body in hooklike form toward each other.

DRUGGIST'S GRADUATE.—Chambers E. Kemble, Brooklyn, N. Y. This is a graduate glass having a base in the form of threaded spiral, an annular flange capping the spiral.

SAMPLE CARD.—Arthur W. Clapp, New York City. This card is divided to present a series of panels, in each of which is a semblance of a spool of silk or roll of woven fabric, there being in each of the panels a representation of a spool or reel.

NOTE.—Copies of any of the above patents will be furnished by Munn & Co. for 10 cents each. Please send name of the patentee, title of invention, and date of this paper.

NEW BOOKS, ETC.

A PRETTY BANDIT. By Frank Bailey Millard. New York: The Eskdale Press, 1 Madison Avenue. Pp. 264. Price $1.

SKETCHES OF TRAVEL IN NORMANDY AND MAINE. By Edward A. Freeman. With illustrations from drawings by the author and a preface by W. H. Hutton, B.D. London: Macmillan & Company Limited. New York: The Macmillan Company. 1897. Pp. xv, 243. Price $2.50.

This really beautiful book may be said, without too much flattery, to possess a double charm. The make-up of it is very elegant. The text is excellent and the author's pen and ink drawings which are reproduced are, in this day of half tone work, a positive relief. We can imagine that the work, to one who travels in France and employs his time in the largest sense, would be a most acceptable guide book, something to be read as the different spots mentioned were reached. Some of the author's drawings are almost in forced perspective, but by taking the proper point of view, this somewhat wide angle effect noticeable may, to an extent, be avoided. The author is a thorough architect and his illustrations relate to the architecture of the region exclusively.

FUEL AND REFRACTORY MATERIALS. By A. Humboldt Sexton. London: Blackie & Son, Limited, 50 Old Bailey. Glasgow and Dublin. 1897. Pp. 352. Price $2.

An up-to-date work on fuel is most acceptable; one which covers the different fuels, their preparation, all kinds of producing furnaces for producing gaseous fuel, the recovery of by-products, advanced metallurgical furnaces, and which, last but not least, treats of pyrometry, calorimetry, the utilization of fuel and its practical analysis. The final portion of the book is devoted to refractory materials, and among them we find silica bricks and basic bricks, with other advanced types of furnace linings given. It will be evident that we have here a very interesting contribution to metallurgy, and the few topics we have cited go to show how advanced a field it occupies.

LIFE AND IMMORTALITY; OR, SOUL IN PLANTS AND ANIMALS. By Thomas G. Gentry, Sc.D., author of "Life Histories of Birds of Eastern Pennsylvania;" "The House Sparrow;" "Nests and Eggs of Birds of the United States;" "Family Names," etc. Philadelphia: Burk & McFetridge Company. 1897. Pp. 489. Price $2 50.

Dr. Gentry in this very attractive work describes what are somewhat inadequately termed the curiosities of natural history. It is devoted largely to the most striking features of animal life, to nest building fishes, to details of animal habits and to many similar topics, so as to make, in a certain sense, condensed reading in the field of natural history. It is quite numerously illustrated by rather characteristic drawings. Dr. Gentry chronicles a battle between ants, describing such an event with perhaps not quite the minuteness given to it by Thoreau and the classic author cited by him, the author alluded to by the Concord naturalist. The book is so general in its topic that its lack of an index is hardly to be noted as a defect.

AMERICAN PLUMBING PRACTICE. From the Engineering Record. A selected reprint of articles describing notable plumbing installations in the United States, and questions and answers on problems arising in plumbing and house drainage. With five hundred and thirty-six illustrations. New York: The Engineering Record. 1896. Pp. 260. Price $3.

The Engineering Record, formerly the Sanitary Engineer, has had a long and honorable career in the field of the literature of plumbing. The articles of which the present volume is composed are extracted from its files. With each article is given its date of publication. The principle with the paper always has been to illustrate articles very liberally, and the result of this rule of action gives us a volume in which the illustrations occupy probably as much space as the text. It is most interesting to turn over its pages and to see how thoroughly the field is covered. In many cases the articles are descriptive of the plumbing of specified houses, such as the Holland, the Waldorf and the New Netherlands, and other examples of almost equal interest are given. An exceedingly interesting portion of the book consists in answers to inquiries which have been published from time to time in the columns of the paper. To this portion alone nearly fifty pages are devoted. We warmly commend the volume.

THE MECHANICAL ARTS SIMPLIFIED. A work of reference. Ice making and electricity. Compiled and arranged by D. B. Dixon. Appropriately illustrated. Chicago: Laird & Lee. 1897. Pp. 497. Price $2.50.

This book, not adequately described by its title, is really a book of tables for all classes of workers in mechanical arts. It is very acceptably printed and contains a very large quantity of matter which will be thoroughly useful to any one working in the field of practical mechanics.

GOSPEL OF THE STARS; OR, WONDERS OF ASTROLOGY. By Gabriel. With introduction by George H. Hepworth. New York: The Eskdale Press. 2 Madison Avenue. 1897. Pp. 194. 12mo. Price $1.

The object of the author in writing the present book has been to aid in popularizing the once famous but long neglected science of astrology.

PHILOSOPHY OF PHENOMENA. By George M. Ramsey. In two parts. I. Metaphysical Phenomena. II. Physical Phenomena. Boston: Banner of Light Publishing Company. 1897. Pp. 208.

MEDICAL CLIMATOLOGY. By S. Edwin Solly, M.D. Philadelphia and New York: Lea Brothers & Company. Pp. 470. Price $4.

A doctor who has for thirty years made a special study as to the effects of climate in the prevention and treatment of disease presents us in this volume the results of his investigations. Climatic observations from all parts of the world are here collated and compared, the work of others being systematized with that of the author, and it is the conclusion of the author that "it is possible to prescribe a climate with as much precision as a drug, and with far greater effect in appropriate cases," and that climatology has a proper place as "one of the most definite and useful of the medical sciences." It would be well if every doctor and every patient, before putting faith in what are often empirical and biased accounts of various health resorts, would consult these pages for full information and exact details, given without prejudice or favor, and thus be able to judge wisely in directing or accepting a change of climate on account of ill health or constitutional infirmity.

ELEMENTARY GEOLOGY. By Ralph S. Tarr. New York: The Macmillan Company. Pp. 500. Price $1.40.

The author, a professor of dynamic geology and physical geography at Cornell University, in this book furnishes a companion and adjunct to his "Elementary Physical Geography," previously published. The book is fully illustrated, the materials for the pictures being largely afforded by specimens in the geological laboratory of Cornell University, although many very interesting pictures are from other original sources. The book is most entertainingly written, has nothing of a dry, technical character, and is especially adapted to be most interesting to the young.

THE GHOST DANCE RELIGION AND THE SIOUX OUTBREAK OF 1890. By James E. Mooney. Fourteenth Annual Report of the Bureau of Ethnology. J. W. Powell, Director. 1896. Washington: Government Printing Office.

This beautiful quarto of 500 pages, handsomely printed and beautifully illustrated, forms Part II of the 14th Annual Report of the Bureau, and is as splendid an example of the care and thoroughness with which the government has prosecuted investigations relative to the history and actual condition of the native Indian tribes as was the former volume on aboriginal architecture, textile weaving, etc. The investigations of the ghost dance religion were commenced by the author in 1890, when this particular phase of Indian life began to attract general attention, and were continued through three years. The dance, however, continually develops new features, and differs in important details among the various tribes, being in a general way a sort of Indian religious revival, founded on primitive doctrines of the Messiah and belief in the teachings of the various Indian prophets. Besides indicating as far as possible the origin and phases of these beliefs, and describing the costumes and actions of the dancers, the book presents a large number of the songs of the different tribes, in their original tongue and with English translations. The